

## REMARKS / ARGUMENTS

In complete response to the outstanding Official Action of February 6, 2006, on the above-identified application, reconsideration is respectfully requested.

Claims 13-17 remain in this application.

### Claim Rejections Under 35 U.S.C. § 103

Claims 13-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Granier '489 in view of Rathbone '016. Applicants respectfully assert that claims 13-17 are not unpatentable in view of Granier '489 in view of Rathbone '016.

Grenier '489 neither teaches nor suggests that "additional compressed air" be combined with "feed air to the blast furnace" to produce a "combined feed air stream", as required by claim 1 of the instant application. Grenier '489 discloses the use of blowers 3, which are designed to feed the blast furnace (*column 2, lines 18-22*). It is explicitly stated in Grenier '489, that:

"It will be noted that with the apparatus 4 having blower 22 shown in Fig. 2., the production of oxygen under the pressure of the blast furnace *requires no additional expenditure of energy relative to the conventional blast furnace*, because the compressed oxygen is produced directly from the air leaving the blast furnace blower *without any additional expenditure of energy.*" (*column 3, lines 50-61, emphasis added*)

Thus, Grenier '489 actually teaches away from the requirement of "additional compressed air" being added to the portion of air that is diverted from the blast furnace feed.

Rathbone '019 fails to remedy this deficiency in Grenier '489. Rathbone '019 discloses a hybrid system that involves a gas turbine, a blast furnace, and an air separation unit. In the system disclosed in Rathbone '019, all of the compressed air that is used in the air separation unit **14** is extracted after the compressor portion **4** of the gas turbine **2**. Rathbone '019 discloses that "the compressed oxygen stream is used to enrich in oxygen an air blast which is supplied to a blast furnace **20**." (*column 5, lines 2-4*) Again, there is no disclosure of any "additional compressed air" to be combined with this gas turbine compressor air stream before entering the air separation unit.

The skilled artisan would find no motivation to combine Grenier '489 with Rathbone '019. Grenier '489 discloses the utilization of an air separation unit into a basic blast furnace system, explicitly without the utilization of any supplemental compressors or blowers. Presumably, the multiple blowers **3** disclosed in Grenier '489, would comprise redundant trains (i.e. 2 x 100%, 3 x 50%, etc.) that would ordinarily allow for off-line maintenance of one blower, while the others satisfy the full requirement of the blast furnace. Thus, by sending the air from this redundant blower, the blast furnace can actually receive a full flowrate of oxygen-enriched air. If the redundant blower is not used, then the flowrate of oxygen-enriched air must be lower than the full flowrate, since the nitrogen that is separated from the inlet air is evacuated (*column 3, lines 15-16*). Rathbone '019 does not use the blower from the blast furnace system to feed the air separation unit, but extracts some compressed air from the gas turbine. The oxygen that is separated from this slipstream is sent to the blast furnace system as true supplemental oxygen, since the air flowrate to the blast furnace is unaffected by the production of the oxygen. The nitrogen from this system is sent back to the expander section of the gas turbine.

Thus, Rathbone '019 discloses a true oxygen *supplement* system, wherein additional or supplemental oxygen is introduced into the blast furnace. However,

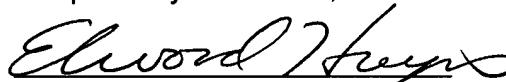
in contrast, Grenier '489 discloses an oxygen *enrichment* system wherein the ratio of oxygen to nitrogen in the flow to the blast furnace is increased, but the total flowrate will typically not be greater than the ordinary air flowrate into the blast furnace. The skilled artisan would see these as two separate and distinct system designs, and would find no motivation to combine them.

Therefore, one skilled in the art would find that neither Grenier '489 nor Rathbone '019, either alone or in combination, neither teach, or suggest all of the elements of independent claim 13 of the present application.

## CONCLUSION

Accordingly, it is believed that the present application now stands in condition for allowance. Early notice to this effect is earnestly solicited. Should the examiner believe a telephone call would expedite the prosecution of the application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,

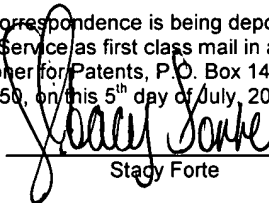


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### CERTIFICATE OF MAILING UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 5<sup>th</sup> day of July, 2006.



Stacy Forte